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From: Jerimiah Rieman
Sent: Fri 3/1/2013 10:13:05 PM
Subject: Deliverable: Part 2 of 2
[WDEQ WQD Chapter 08.pdf](#)
[Water Well Testing Dec 2010 Final.pdf](#)

Bob, Sarah-

The following is deliverable 2 of 2. This includes the purpose and scope of work for the domestic water wells. The attachments referenced below are attached.

Domestic Water Wells – Final Report and Palatability Study

The Wyoming Department of Environmental Quality (WDEQ) will contract with a specialized expert to review the current body of information available for the water supply wells in the Pavillion field, including two additional sampling events to be conducted pre- (March) and post- (October) irrigation in 2013. This review will consist of comparing currently analytical results for each water supply well with the U.S. Environmental Protection Agency (EPA) primary maximum contaminant levels (MCLs) and secondary maximum contaminant levels (SMCLs), and the Wyoming Groundwater Quality Standards, including any additional standards as determined by the Administrator of the Water Quality Division consistent with existing WDEQ regulations. With the exception of those that may be determined by the Administrator, these are provided in Attachment A for reference. The review will be geographically limited to water supply wells commonly labeled PGDW05, PGDW14, PGDW20, PGDW21, PGDW23, PGDW30, PGDW32, PGDW33, PGDW41, PGDW42, PGDW43, PGDW44, PGDW45, PGDW49, LD02 and the five (5) active Town of Pavillion drinking water well. The comparison will note those wells and constituents that exceed these standards. The WDEQ will determine which wells may benefit from further evaluation using exceedance of these standards as the trigger for further evaluation and testing, and may require the installation of monitoring wells. The WDEQ reserves the right to require any action consistent with its authorities under existing statutes, rules and regulations.

For those water supply wells with constituents that exceed standards the WDEQ will initiate water supply well sampling. The scope of work will focus on verification of those constituents that exceed standards. The following protocols will be used to guide the sampling efforts;

- Sampling will follow the WDEQ Water Quality Division Guideline for Sampling and Testing Well Water Quality consisting of testing for Tier 1, 2, and 3 constituents (see attachment B).

- The Tier 3 constituents will include analyzing for “indicator” chemical compounds. Note that some of these indicator type compounds do not have standards but may be useful in determining the source of palatability issues as well as many of the Tier 1 and 2 constituents.
- Tier 3 constituents are limited to sulfate forming bacteria and iron forming bacteria and other constituents that the WDEQ deems appropriate.
- Tier 1, 2, and 3 constituent laboratory analysis will be conducted by commercial laboratories chosen by WDEQ and in accordance with an approved Quality Assurance Project Plan (QAPP);
- Tier 1, 2, and 3 constituent detection limits used by the commercial laboratories will be derived from US EPA laboratory criteria and as defined by an approved Quality Assurance Project Plan;
- Data qualifiers, blank contamination, and other QA/QC related issues will be handled in accordance with established US EPA laboratory protocols; and
- In the event that the WDEQ is denied access to a well by the landowner sampling and palatability consultation will be withdrawn and not included in this study.

WDEQ and the specialized expert will work with each individual landowner that allows sampling to determine the causes and sources of palatability issues and/or well contamination.

- Exceedance of standards will be used to guide the investigation as to the potential source(s) of palatability and/or well contamination issues for that well;
- Oil and gas activities would be investigated as a possible source of water well palatability and/or well contamination issues if oil and gas related constituents exceed the standards; and
- If analytical results exceed standards for constituents determined by WDEQ to be associated with other sources of contamination or determined to be natural in derivation, then WDEQ will determine next steps with the landowner or as otherwise required in accordance with Wyoming law.

The specialized expert will assist the WDEQ in preparation of a final report that summarizes the analytical results relative to standards and, specifically, include a discussion of impacts on palatability associated with constituents and potential sources (including bacteria) identified, or well construction and maintenance issues.

The Department of Environmental Quality has indicated that the engagement of a special expert(s) would be useful, perhaps including the assistance of a toxicologist would be helpful in identifying for the Administrators consideration whether there are health based or aesthetic thresholds that may apply to other constituents.

If you have any questions please do not hesitate to contact me.

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